Before the Federal Communications Commission Washington, D.C. 20554

In the Matter of)	
)	
Local Telephone Competition and)	WC Docket No. 04-141
Broadband Reporting)	
1 0)	
Local Competition and Broadband)	CC Docket No. 99-301
Reporting)	
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COMMENTS OF THE VERMONT PUBLIC SERVICE DEPARTMENT ON NOTICE OF PROPOSED RULEMAKING

On March 31, 2004, the Commission adopted a Notice of Proposed Rulemaking ("NPRM") and an Order on Reconsideration ("Order") concerning the Commission's Form 477 local competition and broadband data gathering program. The Commission requested comment on issues related to the design and implementation of its datagathering program and proposed changes to its Form 477. The Vermont Public Service Department ("VPSD") is pleased to have the opportunity to submit the following comments.

SUMMARY

The Commission should reduce its Form 477 reporting thresholds for broadband service, local telephone service, and wireless service to better account for the presence of small carriers serving rural states and small customer numbers in those states. When collecting information by ZIP code about broadband services, the Commission should not only collect additional information about "speed tiers," but also information about price

Comments of VPSD re: FCC 04-81

and whether connections are symmetrical or asymmetrical. It is also important to ask if services are available throughout the ZIP code or only in part of the ZIP code. Knowing the number of connections a provider supplies by technology type (e.g. ADSL, cable modem, etc.) at the ZIP code is interesting, but less important. The Commission was correct to add additional reporting by "speed tiers" on the form at the state level, but should add additional tier categories at lower speed levels, and should better account for differences in symmetrical and asymmetrical services. The Commission's proposal to require filers to estimate mass-market broadband availability has a number of ambiguities that are likely to limit its usefulness. Although requiring more companies to report Form 477 could create a burden on small companies, the Commission could minimize this burden by creating a simplified form for companies with small numbers of broadband or telephone service.

Continuing to share Form 477 with states would be valuable, especially if the Commission implements changes as discussed in these comments. Also valuable would be a Commission-conducted or sponsored survey on consumer adoption and usage of broadband services.

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I. BROADBAND REPORTING

A. Reporting Thresholds

The NPRM asked for comment on whether the Commission should eliminate or lower the reporting threshold for broadband filers, currently set at 250 high-speed lines (or wireless channels) in a state. The VPSD believes that the Commission should significantly reduce this threshold in the interest of capturing a more accurate picture of broadband deployment in small states such as Vermont. Small providers of broadband services, including small ISPs and WISPs, Vermont or New-England based LECs and small cable companies can and do provide important broadband services, including low-density areas of the state that may not be served by larger companies reporting to the

Commission. While a number of aspects of the current Form 477 reporting regime tend to overstate the level of rural broadband availability in a state like Vermont, the current threshold tends to under-represent the contributions of small service providers to rural broadband availability. For example, there are a number of small cable companies in Vermont that have only about 1,000 or 1,500 total video customers, but also provide broadband services to a fraction of those customers. There are also a number of very small WISPs and CLECs serving rural parts of the state. The VPSD recommends that all service providers with at least 40 broadband customers in the state be required to report.

The VPSD understands and respects the instinct not to require burdensome reporting from small entities. However, the VPSD believes that this burden can be significantly reduced by giving small service providers the option to complete a simplified form that requests only a small amount of the most basic information. This would be preferable to not asking for any information at all, and these comments will provide additional detail in a subsequent section about what information should be requested in such a simplified form.

B. Data Reported by ZIP Code

The NPRM asked for comment on whether the Commission should require filers to report the number of high-speed connections by ZIP Codes, and whether it should require filers to report by ZIP code the number of connections by "speed tiers." There are actually several characteristics of broadband services that would benefit the Commission to see by ZIP code when it performs an analysis of the extent to which broadband services are available to all Americans. These characteristics are technology

type, the number of connections, data transfer speed, price and whether symmetric or asymmetric services are available. If the geographic unit of measure is the ZIP code, an additional important characteristic is whether or not services are available throughout the ZIP code or only in part of the ZIP code.

While all of these characteristics are useful to know, some are more important than others. The characteristic currently requested, technology type, is not the most important. The Commission may choose to limit the number of characteristics on which filers report. If so, it should target those characteristics that are most important. The most important characteristics are data transfer speed and price. The column on the proposed Form 477 inquiring about residential and small business customers is a proxy for these two characteristics, and would not be necessary if the Commission instead required reporting at the ZIP code level on price and speed. The universe of residential and small business broadband services is largely defined by price—what a mass market is prepared to pay—and the services that providers are prepared to offer at those prices. If the Commission obtains information on price and speed, it will be able to identify those areas where residential and small business service are available, but it will also be able to identify if there is a price gap between rural and non-rural areas, or if the services available in rural areas tend to be slower than those in non-rural areas. This information is needed for the Commission to truly "determine whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion," as section 706(b) of the 1996 Telecommunications Act requires.

Part V of the FCC Form 477 should contain columns with the same information transfer rate categories contained in Part I. In addition, it should contain columns listing

price bands in dollars per month. The VPSD recommends the following bands: \$25 or less; greater than \$25, less than or equal to \$35; greater than \$35, less than or equal to \$45; greater than \$45, less than or equal to \$60; greater than \$60, less than or equal to \$100; greater than \$100, less than or equal to \$200; greater than \$200, less than or equal to \$500; greater than \$500. Breaking out technology types by ZIP code is useful, but less important. It is more important to know the rough proportion of connections served by technology at the state level, as this indicates if one technology or another is tending to dominate the broadband market in a state. However, one local area may be as well served by cable modem service (for example) as another local area is by DSL service (for example), if the data transfer speeds and prices are comparable.

Should the Commission decide that requiring filers to report multiple categories of information on speed and price by ZIP code would too greatly increase the amount of information filers are required to submit, the VPSD would recommend an alternative method. This method could also capture how similar or dissimilar broadband service offerings are in different parts of the country. Using this alternate method, the Commission would first ask each filer to identify the characteristics of its three most commonly purchased broadband service offerings in each state with regard to price, speed, and technology. These would be labeled "Service 1," "Service 2," and "Service 3." In Part V, the Form 477 would ask the filer to list zip codes in which it has customers for "Service 1," "Service 2" and "Service 3." By focusing on the most common broadband service offerings, the Commission would see whether broadband services that are commonly available in one area are also available in other areas. It would also allow

the Commission to determine if similar price/speed combinations are available in different areas.

Finally, the NPRM asked if the Commission should require filers to report the number of connections in various "speed tiers" by ZIP code. While this information would be of some value, its value would be limited. A number that is large in one ZIP code may be small in another depending on population. More important is whether or not the presence of some customers in a ZIP code mean that the service is available throughout the ZIP code, or in only part of the ZIP code. The current and proposed method of classifying ZIP codes as either having customers or not having customers overestimates the extent of broadband availability. The VPSD has done extensive work to map the availability of broadband services in Vermont. See Exhibit VPSD-1. Unlike the Form 477, the VPSD has endeavored to document or model the actual geographic extent of broadband services based on such factors such as roads passed by cable, distance from central offices and remote terminals equipped with DSL, and wireless service propagation. These maps indicate that in ZIP codes with some broadband service, there are often significant unserved areas. Exhibit VPSD-1 shows the VPSD's estimate of broadband deployment in Vermont, and VPSD-2 shows this estimate in combination with ZIP codes for Vermont. "Reasonable" deployment of advanced services to all Americans does not mean that some communities are served consistently while others experience a swiss cheese pattern of deployment. Therefore it is important that the Commission's data collection identify not only those communities that have no

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¹ VPSD-1 is an excerpt from the *Vermont Telecommunications Plan, Final Draft*. The complete text of this document is available at www.thinkvermont.com/telecomplan.

service, but those where service may not be available to the whole community. An effort to map actual broadband availability as the VPSD has done would be one way to do this, but this would require substantially more detailed data collection methods than those used by the Form 477 process. Short of this, the Commission should at a minimum require filers to list if services that they provide to customers in a ZIP code are available to the entire ZIP code or only to parts of the ZIP code. Because ZIP code boundaries do not always correspond to the boundaries of other geographic units, the Commission should also ask filers to list if a service is available only to all parts of the ZIP code that make up a legally limited service territory.²

For illustration, the VPSD is including two mock-ups of how Part V might appear if the Commission revised it in line with these comment. Exhibit VPSD-3 illustrates how a revised Part V might look under the first option discussed above for asking about price and speed by ZIP code. Exhibit VPSD-4 illustrates what this alternative Part V might look like if Part V inquired about the characteristics of a filer's three most popular broadband services.

C. Speed Tiers

The VPSD supports the NPRM's proposal to require filing by additional "speed tiers" under Part I of Form 477. In order to compare the deployment of broadband services in different regions, it is important to know how commonplace various tiers of service are; simply counting connections at 200 kbps and above is not sufficient detail. However, the NPRM's proposed tiers are weighted too heavily toward tiers on the high

² These classifications might be called "Full," "Partial," and "Franchised/Authorized Areas Only."

end of the range. While it is reasonable to expect that advanced services in the 10 Mbps and above range will become increasingly important in the future, the most widely-offered services today are slower than this. The VPSD recommends that Part I include a division between tiers in between 200 kbps and 2.5 Mbps. The VPSD recommends that the division be set either at 768 kbps or 1 Mbps. Speeds in the lower end of the range are more likely to be used by mass market customers, and an additional tier at the lower end will provide more information indicating whether different mass market customers are being served with different kinds of advanced services.

There is another aspect of data transfer rates which the proposed form partially addresses, but which could be improved substantially. Many broadband services today are offered with asymmetrical data transfer rates (usually higher in the "downstream" direction). However, symmetrical services can be important for consumers who originate information and for a variety of business applications.³ The current and proposed forms distinguish between symmetrical and asymmetrical DSL technologies, but do not distinguish between symmetrical and asymmetrical services for other technologies. Any of the other technologies listed may come in symmetrical or asymmetrical forms (although some are more likely than others to be available mainly in asymmetrical form). The Commission should collapse lines I-1 and I-2 to a single "xDSL" line, and for each of the "speed tier" columns (columns f-j or their equivalents on a revised form), Part I should ask filers to list counts of symmetrical and asymmetrical services separately.

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³ Examples of applications where "upstream" data transfer rates are as or more important than "downstream" data transfer rates include two-way videoconferencing, VoIP (especially with multiple "lines"), running a server, and remote LAN access.

Exhibit VPSD-5 shows a mock-up of how Part I might appear if the Commission makes changes as described above.

D. Estimating Mass-Market Broadband Availability

Part IB of the proposed Form 477 adds a new information request. It asks filers who provide xDSL or cable modern services to estimate the percentage of mass-market end-user premises in their service areas to which broadband connection are available over their own local loop facilities. This is useful information to know, but is subject to misinterpretation and ambiguity. It should therefore be approached with caution. The issues raised by the proposed form are somewhat different for cable modem and DSL services.

1. Cable Modem Service Availability

In the case of cable modems, the instruction not to use "video homes passed" as the denominator in the equation used to produce the percentage may in fact produce inconsistent results in different areas depending on the size of franchise areas and the policies of the local franchising authority. This springs from the facts that not all areas of the country have a cable franchise and not all franchised areas are passed by cable plant. Yet what is important for the availability of cable modem service is not whether or not there is a cable franchise, but whether or not there are actually cable facilities passing a location. Therefore basing the denominator on franchised areas is arbitrary.

An example will help to illustrate this. In Vermont, cable franchises are issued by the Vermont Public Service Board ("VPSB"), typically on a town basis. In many instances, cable companies only serve part of franchised towns, and cable line extensions

are required where customer densities in unbuilt areas rise above a threshold set from year to year by a VPSB-established formula. If cable companies only held franchises in towns in which they actually were required to construct facilities, the denominator would be one number. This, however, is not always the case. In recent years the VPSB has required cable companies to seek franchises for towns adjacent to the towns in which they offer service, but it does not require the cable companies to construct any facilities in these adjacent to towns unless and until potential customer densities meet the required threshold (which most oftentimes they do not). These additional franchised areas would tend to depress the calculated percentage of availability under the proposed Form 477 formula, even though adding franchise areas does not mean that the cable company is actually making service available to any fewer number of potential customers.

Furthermore, in Vermont, while there are currently no cable operators that have overlapping facilities, it is not uncommon for at least two cable operators to have a franchise for the same town, either because both have a franchise for an unserved town, or because one or more serve parts of the town, but other parts are unserved. In this way unserved areas could be "double counted" by multiple cable operators, lowering the denominators of each. Beyond even this complicating factor, there are some unserved towns that would not be counted in any denominator, only because the VPSB has not granted any franchise in the town.

A more accurate picture of the availability of cable modem service to all

Americans would require the Commission to combine information reported by cable
companies and supplemental information, such as that collected by the Census Bureau on
the number of households and business establishments. The information that the

2. DSL Service Availability

DSL service offered by incumbent LECs, which generally have non-overlapping service territories that extend to all areas with population, is a better candidate for the estimating method that the Commission has proposed in Part IB. DSL service offered by CLECs, however, presents complications similar to the complications presented by cable modem service. According to the proposed Form 477 instructions, CLECs who do not provide DSL over their own facilities would not report. Yet in some areas, CLECs provide DSL over wholesale loops where incumbents do not provide the service. The Commission ought to require reporting by CLECs who use wholesale loops.

Additionally, it may be unrealistic to expect CLECs to define the denominator in a sufficiently similar way to achieve truly comparable results. For example, the VPSB typically provides CLECs with Certificates of Public Good that authorize companies to do business throughout the entire state of Vermont (including independent company territories). Yet in practice, CLECs only provide DSL in certain Verizon exchanges in which they have "launched" the service. A strict reading of the proposed Form 477

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⁴ To avoid "double counting," the Commission may also need to require cable companies to report the number of households and business establishments passed which are also passed by another cable operator's facilities. However, this should be an atypical situation.

instructions would have the CLEC use the total number of mass-market customers in the state. Whether or not a CLEC provides services over its own facilities or using leased facilities, it is not clear that this actually is a fair representation of the extent of a CLEC's availability, nor is it clear what other denominator would be most appropriate.

Furthermore, unlike cable modem service providers, which rarely serve overlapping areas, it is common for CLEC DSL service areas to overlap the DSL service areas of other LECs. For all these reasons, the Commission should be wary about reading too much into any percentage of availability provided by CLECs.

II. LOCAL COMPETITION AND MOBILE VOICE REPORTING

The NPRM asked if the Commission should adopt a lower threshold for reporting local competition data. The VPSD believes that the present and proposed threshold, 10,000 voice-grade equivalent lines, unacceptably skews the data collected in a state like Vermont. In 2002, Vermont's largest telephone company, Verizon-Vermont, had slightly more than 443,000 access lines. The second two largest incumbent telephone companies had slightly less than 22,000 access lines each. Five competitive companies with 9,000 access lines each could capture a market share equal to 10% of Verizon's lines and still go unreported. If the Commission lowered the threshold to 1,000 lines in a state, the risk of missing a substantial portion of competition in a small state would be significantly reduced. This threshold should not greatly increase reporting burdens. Smaller telephone companies are less likely to have a great diversity of service types, and therefore should often only need to complete a limited number of the cells in Part II of Form 477, and list a more limited number of ZIP codes. If the Commission is concerned that lowering the

threshold would produce an unacceptable burden, requiring the filing of a simplified form by smaller service providers would still provide a rough measure of the competition from small companies. Such a simplified form could request merely the total voice-grade equivalent lines and voice-grade equivalent channels in service and a listing of ZIP codes.

For similar reasons, the proposed reporting threshold for mobile telephony, 10,000 subscribers, is also too high in a small state. For many years Vermont was served by only two mobile telephone providers in any given area, and increasing competitive choice in this market is desirable. Recently, two additional facilities-based providers have entered the state and two existing providers have expanded the reach of their licenses in the state. Unlike the broadband or local telephone markets, where there often is limited responsibility attached to any particular competitive company to enter a given geographic area and provide service, in the mobile telephone market, the Commission should expect all license holders to build out their networks and provide service. Therefore a very low subscriber count reported by a licensed CMRS provider, especially period after period, should be as of much interest to the Commission as a high subscriber count. Instead of establishing a subscriber threshold for these companies, all CMRS holding a license covering all or part of a state should be required to report for that state. Part III of proposed Form 477 also contains the smallest number of information requests, minimizing the burden of responding for any service provider.

III. SHARING REPORTED DATA WITH STATES

Vermont is one of the states with which the Commission has shared Form 477 data. The NPRM requested comment on the value of this program. Early on, this data

was one of the only ways Vermont could estimate the extent of broadband coverage in the state. However, because of the limits of the data—especially that it did not identify specifically where mass-market broadband services were available, did not count small service providers, and did not identify where broadband services were only partially available in ZIP codes—the VPSD, in cooperation with other state agencies, went on to develop its own, more detailed techniques for mapping broadband service in Vermont. The Form 477 data remains the best way available to the VPSD to compare itself to other states. The limitations of the existing program, as identified in the NPRM and in these comments, have tended to reduce the willingness of the VPSD to rely on state-to-state comparisons derived from the Form 477 data, especially once the VPSD had its own maps of broadband availability in Vermont and could see how these differed from FCC data. Making the changes proposed in the NPRM and making the further changes proposed in these comments will tend to improve the confidence of states in the meaningfulness of the data.

IV. LIMITING BURDENS ON SMALL PROVIDERS

While there is value to collecting data on broadband connections provided by small providers, the Commission is right to be concerned about placing too heavy a reporting burden on small providers of service. The VPSD believes that the Commission should consider reducing the burden required by allowing small service providers to complete a simplified form instead of foregoing data collection about these carriers. Specifically, the VPSD believes that the following information (in addition to the cover page information) represents a minimal amount of information that still would add value

to the analysis of the Commission and others: (i) total asymmetrical connections to endusers (information transfer rates exceeding 200 in at least one direction), by technology type; (ii) total symmetrical connections to end-users (information transfer rates exceeding 200 in at least one direction), by technology type; (iii) ZIP code listings (same as larger-company filers).⁵ Exhibit VPSD-6 shows what such an abbreviated form might look like.

V. CONSUMER SURVEY

The VPSD supports Commission action to conduct or commission a survey on consumer adoption and usage of broadband services. The VPSD itself has commissioned a survey of Vermont residents and businesses on a variety of subjects, including broadband adoption and usage as part of its state telecommunications planning responsibility. The VPSD has found that survey data, in combination with information about the geographic extent of broadband services, provides a much richer picture of the state of broadband deployment than either in isolation. Although it is valuable for states to conduct their own surveys, nationwide surveys such as the one contemplated by the Commission are valuable because they give states a basis for comparing themselves to a national norm. Although there will doubtless be many factors that will determine how the commission words its survey questions, using language similar to that used by state surveys has value because it promotes greater comparability of information at the state and federal levels. For the Commission's consideration, please see Exhibits VPSD-7,

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⁵ While it might appear that requesting ZIP code listings would be one of the larger reporting burdens, it seems unlikely that very small providers will serve large number of ZIP codes, thereby reducing the volume of information required under this heading.

VPSD-8 and VPSD-9, which contain excerpts from the residential and non residential survey instruments used in the VPSD survey and a description of the survey results.⁶

VI. CONCLUSION

The Commission is correct to improve its Form 477 local competition and broadband data-gathering program. Lowering reporting thresholds will produce more accurate results, and reporting burdens can be kept in check by offering small companies simplified forms with reduced information requests. The Commission should seek a more complete description of the broadband services that are offered by asking questions not only about the number of connections, technology type, and speed tier, but also about price and whether services are asymmetric or symmetric. The Commission should also determine if services are available throughout ZIP codes or only in parts of them. This added information will help the Commission better fulfill its duties under section 706(b) of the Telecommunications Act of 1996. On the other hand, the Commission's proposed means of estimating mass-market broadband availability is less likely to be useful. Surveys of consumers about broadband services would be useful. The VPSD has used

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⁶ The complete survey instruments are available from the VPSD upon request. VPSD-9 is an excerpt from the *Vermont Telecommunications Plan*, *Final Draft*. The complete text of this document is available at www.thinkvermont.com/telecomplan.

Form 477 data in the past, and would find its usefulness increased if the Commission

implemented these changes.

June 25, 2004

Respectfully submitted,

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Table 3.7: High-speed lines, selected states 2000-2003

	June 2000	Dec. 2	000	June 2	2001	Dec. 2	001
	Lines	Lines	% Change	Lines	% Change	Lines	% Change
Vermont	1,551	7,773	401%	16,230	109%	21,795	34%
Maine	17,864	26,266	47%	38,149	45%	49,523	30%
New Hampshire	33,045	42,364	28%	55,658	31%	71,200	28%
Massachusetts	185,365	289,447	56%	357,256	23%	505,819	42%
New York	342,743	603,487	76%	893,032	48%	1,199,159	34%
Utah	19,612	35,970	83%	55,103	53%	72,977	32%
West Virginia	1,835	6,498	254%	16,697	157%	32,848	97%
New Mexico	2,929	28,497	873%	20,482	-28%	31,940	56%
Washington	118,723	195,628	65%	227,066	16%	335,667	48%
Iowa	49,159	58,199	18%	72,583	25%	82,024	13%
Nationwide	4,367,434	7,069,874	62%	9,616,341	36%	12,792,812	33%
	'		'		•		•
		June 2	002	Dec. 2	2002	June 2	003

	June 2	002	Dec. 2	2002	June 2	003
	Lines	% Change	Lines	% Change	Lines	% Change
Vermont	29,990	38%	32,814	9%	39,773	21%
Maine	61,406	24%	73,061	19%	85,615	17%
New Hampshire	86,200	21%	102,590	19%	118,879	16%
Massachusetts	583,627	15%	679,084	16%	821,135	21%
New York	1,406,894	17%	1,725,296	23%	1,997,340	16%
Utah	93,928	29%	121,744	30%	135,007	11%
West Virginia	58,209	77%	78,980	36%	90,173	14%
New Mexico	44,942	41%	57,956	29%	71,969	24%
Washington	422,348	26%	485,063	15%	577,378	19%
Iowa	102,932	25%	121,053	18%	162,257	34%
Nationwide	16,202,540	27%	19,881,549	23%	23,459,671	18%

Source: FCC

B. Service Availability

BROADBAND SERVICE AVAILABILITY

Broadband coverage continues to expand in Vermont. The Public Service Department (PSD) and the Department of Economic Development, with the cooperation of service providers, have engaged in an effort to map this progress and estimate the percentage of Vermonters who have access to services such as cable modem service and Digital Subscriber Line (DSL). Figure 3.1 displays the estimated extent of DSL coverage in Vermont, while Figure 3.2 displays the estimated extent of cable modem coverage. Figure 3.3 shows the combined areas served by DSL and cable modem service in Vermont and the areas where the services overlap. Figure 3.4 shows the estimated coverage by Wireless Internet

Exhibit VPSD-I
Comments of the \square
Vermont □
Department of Public \square
Service□
in WC Docket 04-141□
and CC Docket 99-301 \square
June 25, 2004□

Figure 3.1: DSL coverage May 2004

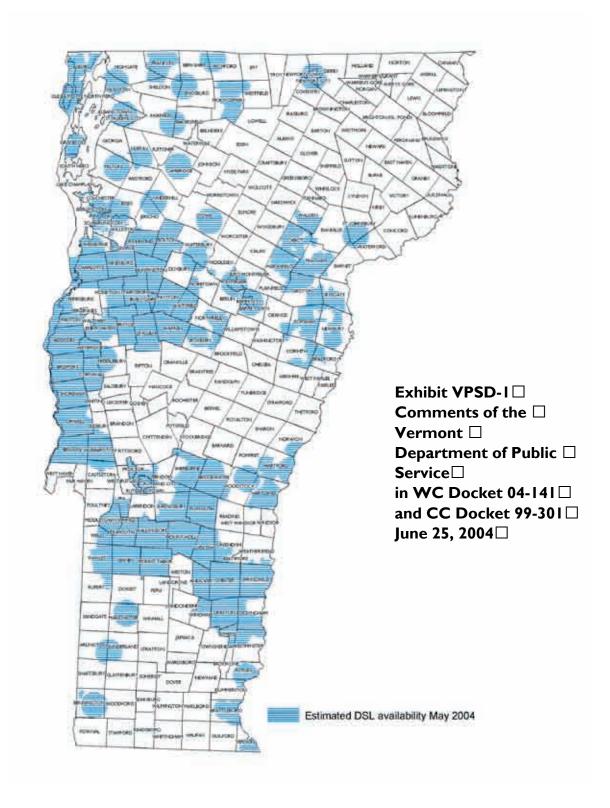


Figure 3.2: Cable modem coverage May 2004

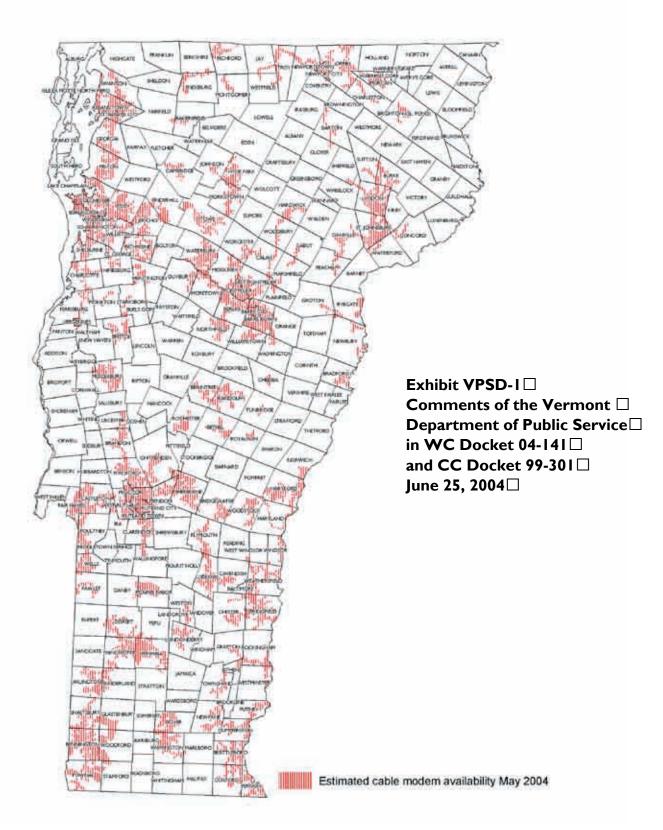


Figure 3.3:

Combined DSL and cable modem coverage

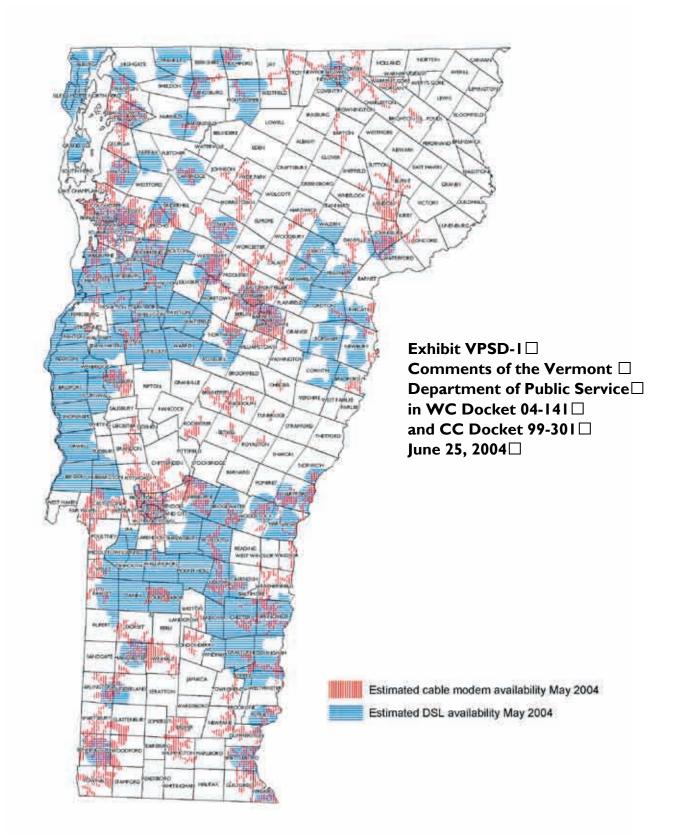


Figure 3.4: Wireless ISP broadband coverage

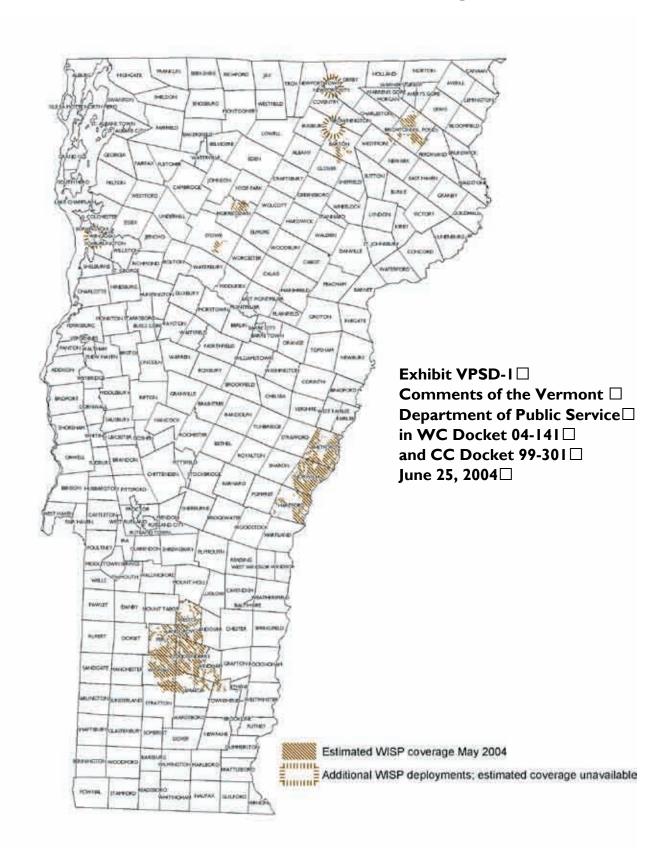


Figure 3.5: **Broadband service and population density**

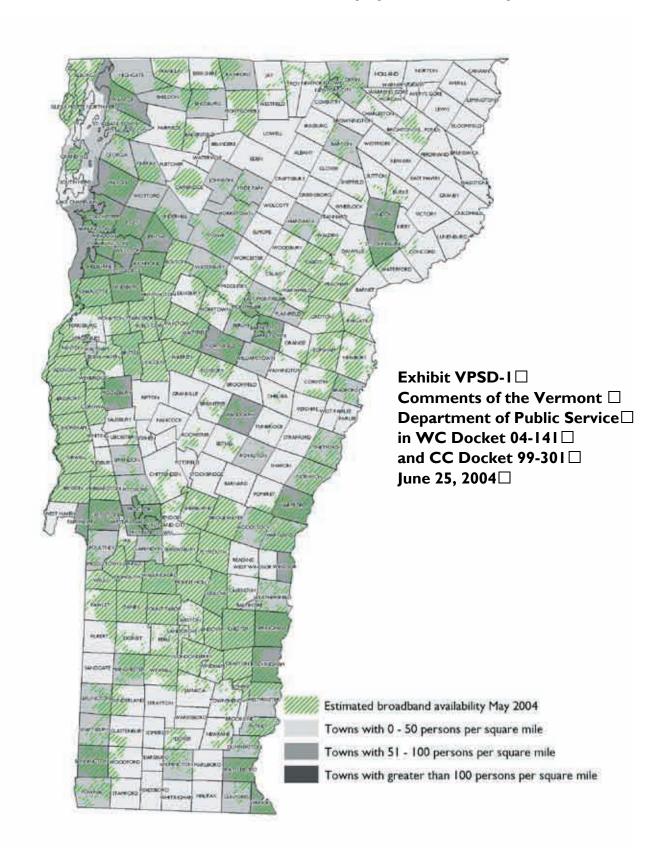


Table 3.8:

Broadband availability in Vermont by county--2003

County	Total Population 2000	Total Pop - Cable Modem Coverage	Cable %	Total Pop - DSL Coverage	DSL %	Total Pop: Cable modem or DSL Coverage	Cable modem or DSL Coverage %
Grand Isle	6,901	-	-	1,933	28.01	1,933	28.0
Franklin	45,417	26,632	58.64	24,010	52.87	30,895	68.0
Orleans	26,277	-	-	5,794	22.05	5,794	22.1
Essex	6,459	668	10.3	-	-	668	10.3
Lamoille	23,233	12,338	53.1	3,560	15.3	12,338	53.1
Chittenden	146,571	130,943	89.3	108,930	74.3	139,132	94.9
Washington	58,039	46,470	80.1	41,345	71.2	51,981	89.6
Caledonia	29,702	20,139	67.8	7,042	23.7	20,471	68.9
Addison	35,974	17,078	47.5	26,193	72.8	30,571	85.0
Orange	28,226	10,725	38.0	1,178	4.2	12,016	42.6
Rutland	63,400	49,785	78.5	34,428	54.3	58,676	92.5
Windsor	57,418	23,299	40.6	27,666	48.2	35,604	62.0
Bennington	36,994	31,677	85.6	17,793	48.1	32,014	86.5
Windham	44,216	24,757	56.0	14,179	32.1	26,238	59.3
State of Vermont	608,827	394,511	64.8	314,051	51.6	458,331	75.3

Estimating Broadband Coverage in Vermont

sing Geographic Information Systems (GIS) software, the Department of Economic Development and its contractor, the Technology Policy Group (TPG) of Ohio State University, were able to develop the estimates in this plan with the assistance of the PSD. TPG first estimated the geographic extent of DSL and cable modem service. It was possible to generate a map of the areas served by cable systems with modem service using maps of served roads submitted by cable companies to the PSD with their annual reports. Estimating DSL

coverage was trickier. Some telephone companies provide DSL service essentially throughout their telephone exchanges, and these exchanges were shaded in their entirety. In other instances, TPG estimated the possible "reach" of DSL services from known service locations provided by telephone companies. This method, while not exact, provides one of the best methods for estimating DSL known to be in use at this time. Still, these estimates should not be assumed to have greater precision than they actually have. To convert the estimated geographic

extent of broadband service into an estimate of the population to which the service is available, TPG used year 2000 U.S. Census information. The population of the census blocks overlain by broadband service areas was used to calculate an estimate of the population in areas served by broadband. Again, this is an imprecise estimate, but the numbers produced are consistent with what might be expected, given what else is known about the penetration of cable TV service and the percentage of the population served by telephone companies offering DSL.

Exhibit VPSD-I

Comments of the Vermont \square

Department of Public Service □

in WC Docket 04-141□

Exhibit VPSD-I
Comments of the Vermont
Department of Public Service
in WC Docket 04-I4I
and CC Docket 99-30I
June 25, 2004

Service Providers (WISPs). (For both DSL and WISP services, coverage for higher-priced broadband services marketed to businesses is slightly greater than shown; these figures show only areas covered by mass-market broadband services.) Figure 3.5 displays the combined coverage with a population density overlay. High-speed access via satellite is not displayed. As the telephone survey detailed in Section 4 reveals, only a small fraction of Vermonters currently obtain broadband access via satellite or wireless. While denser locations in Vermont are more likely to have broadband service available there are also low-density areas that have broadband service, especially DSL and wireless broadband. Table 3.8 shows an estimate of the percentage of the population with access to broadband service, broken down by county. (For an explanation of the method by which these maps and coverage estimates were generated, please see the sidebar, "Estimating Broadband Coverage in Vermont.") Additional maps depicting 2002 cable modem and DSL availability can be found at https://www.state.vt.us/psd/Menu options/Telecomm files/telplan4maps.html.

CABLETY AVAILABILITY

Cable service has slowly continued to expand in Vermont. A significant expansion can be expected with an agreement by Adelphia Cable to complete its agreed-to line extensions. Figure 3.6 displays the extent of cable service in Vermont. (See also Figure 2.3 in Section 2, "Telecommunications Initiatives and Activities," for a map of cable systems by operator.) Results of the PSD telephone survey presented in Section 4, Survey Results and Public Input Process, indicate that about 65% of Vermonters either have cable TV service or have cable facilities running by their homes so that they could subscribe if they wanted to do so.

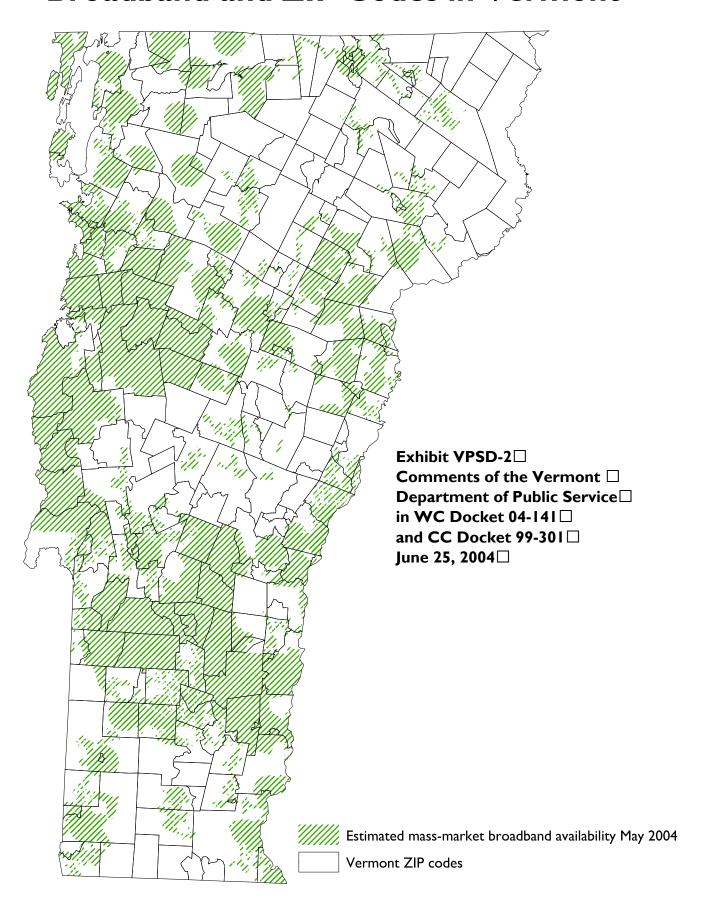
C. Comparative Prices

LOCAL TELEPHONE

RETAIL RATES

The local telephone rates of Vermont's ten incumbent telephone companies (Verizon and the nine independents) are important elements in Vermonters' telephone bills, although dial tone rates do not tell the whole story. Table 3.9 shows the rates, current as of the end of 2003, two key rates regulated by the Public Service Board (PSB): the local dial tone rate and the per-minute charges that companies charge for calls made to the consumer's home exchange and their extended area service (EAS) local calling area. While most consumers are charged by the minute for local calls, most also have a cap on the total amount they will be charged for local usage in addition to the monthly local charge. Table 3.10 shows how much customers who use various levels of local usage would be charged by various incumbent local companies, minus state sales tax and federal excise tax (which together add an additional 9% to the bill). Statistics filed with the FCC indicate that the average Verizon-Vermont customer made about 1500 minutes of local calls per month in 2002.² Although many people believe that local telephone rates are set entirely at the state level, there

Broadband and ZIP Codes in Vermont



FCC Form 477 -- Local Competition and Broadband Reporting

Talanhona

(a)

ZIP codes)

Filers completing Part I or Part II must supply a list of 5-digit Zip Codes in which the filer has at least one customer. Do not provide customer counts by Zip Code.

Part V: Zip Code Listings

Exhibit VPSD-3
Comments of the Vermont
Department of Public Service
in WC Docket 04-141
and CC Docket 99-301
June 25, 2004

relepitorie
service
reported in
Part II

Data as of

V - 1. Wireline & fixed wireless exchange telephone (enter 5-digit

			Are broadband	l services offer	Broadband cor		ed in Part I mation transfer ra	tes exceeding 2	200 kbps in both di	rections and:		
(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(I)	(m)	(n)
ZIP codes in which the filer has at least one broadband	Have information transfer rates greater than	200 kbps and less than 1 mbps	Have information transfer rates greater than or	equal to 1 mbps and less than 2.5 mbps	Have information transfer rates or creater than or	equal to 2.5 mbps and less than 10 mbps	Have information transfer rates creater than or	equal to 10 mbps and less than 25 mbps	Have information transfer rates	greater trial or equal to 25 mbps and less than 100 mbps	Have information transfer rates	greater than or equal to 100 mbps

(Enter "Full" if service at the listed speed tier is offered throughout the entire ZIP code, "Partial" if service at the listed speed tier is offered only to some locations in the ZIP code, and "Auth. Only" if service at the listed speed tier is offered to only some locations in the ZIP code, but all locations in the ZIP code that fall within a governmentally-defined franchise area or service territory. If extent of service availability in a ZIP code is unknown or uncertain, but there is at least one customer, enter "Partial". Leave blank if service at the listed speed tier is not offered in the ZIP code.

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FCC Form 477 -- Local Competition and Broadband Reporting

Part V: Zip Code Listings (continued)

7______

Are sold to end users for less than \$25 per month	(o)			
sold to end users at least \$25 per nth, but less than per month	(p)			
Are sold to end users for at least \$25 per month, but less than \$35 per month	(q)			
sold to end users at least \$25 per nth, but less than 5 per month	(r)	Are		
sold to end users at least \$25 per nth, but less than 5 per month	(s)	broadband se	Broadband of	
sold to end users at least \$35 per nth, but less than 5 per month	(t)	rvices offered	connections re	
sold to end users at least \$45 per nth, but less than per month	(u)	in the ZIP co	eported in Par	
Are sold to end users for at least \$60 per month, but less than \$100 per month	(v)	de that:	t I	
sold to end users at least \$100 per ith, but less than 0 per month	(w)			
Are sold to end users for at least \$200 per month, but less than \$500 per month	(x)			
e sold to end users \$500 per month more	(y)			

(Enter "Full" if service at the listed price is offered throughout the entire ZIP code, "Partial" if service at the listed price is offered only to some locations in the ZIP code, and "Auth. Only" if service at the listed price is offered to only some locations in the ZIP code, but all locations in the ZIP code that fall within a governmentally-defined franchise area or service territory. If extent of service availability in a ZIP code is unknown or uncertain, but there is at least one customer, enter "Partial". Leave blank if service at the listed price is not offered in the ZIP code.

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Exhibit VPSD-3□
Comments of the Vermont \Box
Department of Public Service
in WC Docket 04-141□
and CC Docket 99-301 \square
lune 25. 2004□

Part V: Zip Code Listings Data as of Filers completing Part I must supply the characteristics of their broadband service offerings with the greatest number of subscribers in the state, up to three service offerings. (a) (b) (c) Technology Maximum (choose from Maximum Price per month download speed upload speed list) V - 1 Service 1 V - 2 Service 2 V - 3 Service 3 Filers completing Part I or Part II must supply a list of 5-digit Zip Codes in which the filer has at least one customer Do not provide customer counts by Zip Code. Telephone service reported in Part II Broadband connections reported in Part I (a) (b) (e) (g) V - 4 Wireline & fixed wireless Service exchange ZIP codes in telephone which the filer has (enter 5-digit at least one ZIP codes) broadband customer (Enter "Full" if the service is offered throughout the entire ZIP code, "Partial" if the service is offered only to some locations in the ZIP code, and "Auth. Only" if service offered to only some locations in the ZIP code, but all locations in the ZIP code that fall within a governmentally-defined franchise area or service territory. If extent of service availability in a ZIP code is unknown or uncertain, but there is at least one customer, enter "Partial". Leave blank if the service is not offered in the ZIP code. 2 3 4 5 6 7

FCC Form 477 -- Local Competition and Broadband Reporting

Exhibit VPSD-4□
Comments of the Vermont \Box
Department of Public Service
in WC Docket 04-141□
and CC Docket 99-301 \square
June 25, 2004□

FCC Form 477 -- Local Competition and Broadband Reporting Part I: Broadband

Complete Part I if you and all affiliates (including commonly controlled entities) provide 250 or more broadband lines or wireless channels in the state over your own facilities or over lines you provisioned as broadband. See instructions for definitions of "own facilities", "broadband", "end user", and "residential and small business", "symmetrical", and "asymmetrical".

If you provide data in Part I, you must provide in Part V a list containing the 5-digit Zip Codes of the enduser locations in which you provide the broadband services reported herein. See instructions.

Data as of Percentages of lines and wireless Lines and wireless channels of channels reported in (a), and broadband service that you provided over (a) Billed (or incorporated in a service billed) to end users by you, or gyour affiliates or agents your own facilities, or over UNE loops or end users (information rates exceeding 200 kbps in at least one connections to A. other lines and wireless channels that you Provided over your own local loop facilities or the wireless last-mile equivalent obtained from other service providers and equipped as broadband, categorized by technology at the end-user location. direction) xDSL. I - 1. Other traditional wireline. Cable modem. Optical carrier (fiber to the end user). Satellite. Terrestrial wireless fixed. Terrestrial wireless mobile. Electric power line. I - 9. All other technologies. Report specific technology and the corresponding number

Note: In Part I, report actual counts. Do not report voice-grade equivalent measures.

of connections in the comment section of Part IV.

Exhibit VPSD-5
Comments of the Vermont \Box
Department of Public Service □
in WC Docket 04-141□
and CC Docket 99-301 □
June 25, 2004□

FCC Form 477 Local Competition and Broadband Reporting	Exhibit VPSD-5 □
Part I: Broadband (continued)	Comments of the Vermont \Box
	— Department of Public Service□
	in WC Docket 04-141□
	and CC Docket 99-301 \square
	June 25, 2004□

		Perce	entages of lines a	nd wireless cha	nnels reported in	(a), and that ha	ve information tra	nsfer rates exce	eeding 200 kbps i	n both directions	s and:	
	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(1)	(m)	(n)	(o)
	Have information transfer rates	greater than 200 kbps and less than 1 mbps	Have information transfer rates	equal to 1 mbps and less than 2.5 mbps	Have information transfer rates	equal to 2.5 mbps and less than 10 mbps	Have information transfer rates	equal to 10 mbps and less than 25 mbps	Have information transfer rates	equal to 25 mbps and less than 100 mbps	Have information transfer rates	greater than or equal to 100 mbps
	asymmetrical	symmetrical	asymmetrical	symmetrical	asymmetrical	symmetrical	asymmetrical	symmetrical	asymmetrical	symmetrical	asymmetrical	symmetrical
I - 1.												
I - 2.												
I - 3.												
I - 4.												
I - 5.												
I - 6.												
I - 7.												
I - 8.												
I - 9.												

FCC Form 477EZ -- Local Competition and Broadband Reporting Part I: Broadband

L — — — -	 	 	

Complete Part I if you and all affiliates (including commonly controlled entities) provide 40 or more, but less than 250, broadband lines or wireless channels in the state over your own facilities or over lines you provisioned as broadband. See instructions for definitions of "own facilities", "broadband", "end user", and "residential and small business", "symmetrical", and "asymmetrical".

If you provide data in Part I, you must provide in Part V a list containing the 5-digit Zip Codes of the end-user locations in which you provide the broadband services reported herein. See

Data as of

Lines and wireless channels of broadband service that you provided over your own facilities, or over UNE loops or

A. other lines and wireless channels that you obtained from other service providers and equipped as broadband, categorized by technology at the end-user location.

(a)	(b)
Total connections to end users	(information rates exceeding 200 kbps in at least one direction)
asymmetrical	symmetrical

- I 1. xDSL.
- I 2. Other traditional wireline.
- I 3. Cable modem.
- I 4. Optical carrier (fiber to the end user).
- I 5. Satellite.
- I 6. Terrestrial wireless fixed.
- I 7. Terrestrial wireless mobile.
- I 8. Electric power line.
- I 9. All other technologies. Report specific technology and the corresponding number of connections in the comment section of Part IV.

Note: In Part I, report actual counts. Do not report voice-grade equivalent measures.

Exhibit VPSD-6□
Comments of the Vermont \Box
Department of Public Service
in WC Docket 04-141□
and CC Docket 99-301 □
June 25, 2004□

[Refused]	9		
-	ice would	l you prefer building a small nu	umber of tall towers or a large
number of short towers?			
A large number of short t		1	
A small number of tall to	wers	2	
Neither		3	
Don't know/don't care		7	
Refused		9	
		o-way mobile radio communicates accement of more towers in you	ations for police, ambulance, or fire r community?
No 2			
Don't know/not sure 7			
Refused 9			
{On-Line}			
{On-Line} Now I have some questions abou	t the Inter	rnet	Exhibit VPSD-7 Comments of the Vermont
Now I have some questions abou			
			Comments of the Vermont \Box
Now I have some questions about 33. When, if ever, did you last	st use the	Internet?	Comments of the Vermont ☐ Department of Public Service ☐
Now I have some questions about 33. When, if ever, did you last Today	st use the	Internet? [go to {Internet locations}] [go to {Internet locations}]	Comments of the Vermont ☐ Department of Public Service☐ in WC Docket 04-141☐ and CC Docket 99-301☐
Now I have some questions about 33. When, if ever, did you last Today In the last 7 days	of use the 101 02	Internet? [go to {Internet locations}]	Comments of the Vermont ☐ Department of Public Service☐ in WC Docket 04-141☐ and CC Docket 99-301☐
Now I have some questions about 33. When, if ever, did you last Today In the last 7 days In the last 30 days	01 02 03	Internet? [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}]	Comments of the Vermont ☐ Department of Public Service☐ in WC Docket 04-141☐ and CC Docket 99-301☐
Now I have some questions about 33. When, if ever, did you last Today In the last 7 days In the last 30 days In the last 3 months	01 02 03 04	Internet? [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}]	Comments of the Vermont ☐ Department of Public Service☐ in WC Docket 04-141☐ and CC Docket 99-301☐
Now I have some questions about 33. When, if ever, did you last Today In the last 7 days In the last 30 days In the last 3 months In the last 6 months	01 02 03 04 05	Internet? [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}]	Comments of the Vermont ☐ Department of Public Service☐ in WC Docket 04-141☐ and CC Docket 99-301☐
Now I have some questions about 33. When, if ever, did you last Today In the last 7 days In the last 30 days In the last 3 months In the last 6 months In the last year	01 02 03 04 05 06	Internet? [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}]	Comments of the Vermont ☐ Department of Public Service☐ in WC Docket 04-141☐ and CC Docket 99-301☐
Now I have some questions about 33. When, if ever, did you last Today In the last 7 days In the last 30 days In the last 3 months In the last 6 months In the last year More than a year ago	01 02 03 04 05 06 07	Internet? [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}] [go to {Internet locations}]	Comments of the Vermont ☐ Department of Public Service☐ in WC Docket 04-141☐ and CC Docket 99-301☐

Expense:

- 1. I don't have the necessary equipment or access to the equipment
- 2. The equipment is too expensive
- 3. The Internet monthly service charges are too expensive
- 4. The charges for local phone calls to the Internet are too expensive

No familiarity:

- 5. I don't like computers
- 6. Never heard of it or don't know what it is
- 7. I don't know how to use it
- 8. Don't have time to learn how to use it

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- 9. Little or nothing on the Internet interests me
- 10. My friends cannot receive email
- 11. Instead of email, I prefer to use the phone or write letters
- 12. Other (specify)
- 77 Don't know / not sure
- 99 Refused

[If Q32 = 07-99, go to {no Internet use}]

{Internet locations}

[ask the following question if Q32 "when did you last use the Internet?" is 01 through 06]

I'm going to read you a list of locations where people might use the Internet. For each one I would like you to tell me if you have used the Internet at that location in the last 12 months.

35. In the last 12 months have you used the Internet at [Code all that apply] [read responses]

Your home

A friend, neighbor or relative's home

Your work

A school in your community

A Public library

A senior center

A place of worship

A town hall or other government office

A college or university

A café, restaurant, or other eating or drinking establishment

Some other business offering Internet access for the public

Some other place (specify)

36. In the last six months, how often have you visited a Vermont State Government Internet web site?

Would you say . . . [read responses]
Frequently 1
Occasionally or 2
Never 3
[Don't know/not sure] 7

[Don't know/not sure] /

[Refused]

Exhibit VPSD-7□

Comments of the Vermont □

Department of Public Service□

in WC Docket 04-141□ and CC Docket 99-301□

June 25, 2004□

37. Do you currently have Internet access service at home?

Yes 1

{no Internet use}

No 2 [to {no Internet}]
Don't know/not sure 7 [to {no Internet}]
Refused 9 [to {no Internet}]

38. Who is your Internet service provider?

Adelphia – ask if they mean Adelphia cable or Adelphia Business Solutions also known as ABS, Telcove or Hyperion

- 1. Adelphia Business Solutions also known as ABS
- 2. Adelphia cable
- 3. America On Line or AOL
- 4. AT&T
- 5. Charter Communications
- 6. Charter Cable
- 7. Earthlink
- 8. FCG Networks
- 9. Gov Net
- 10. Green Mountain Access
- 11. Hyperion
- 12. Kingdom Connection
- 13. MCI
- 14. Microsoft Network
- 15. MSN
- 16. New ISP
- 17. North Country Broadband
- 18. North Country Cable
- 19. North Country Wireless
- 20. Power Shift Online
- 21. Shoreham
- 22. Silicon Dairy
- 23. Sover Net
- 24. Sprint
- 25. Stowe Cable
- 26. TDS Net
- 27. Telcove
- 28. Together Net
- 29. Trans Video
- 30. UU Net
- 31. Valley Net
- 32. Verizon
- 33. Vermont Link.net
- 34. VT Link
- 35. Vtel Internet
- 36. WorldCom
- 37. Other (specify)
- 77. Don't know/ not sure
- 99. Refused

Exhibit VPSD-7□
Comments of the Vermont \square
Department of Public Service \square
in WC Docket 04-141□
and CC Docket 99-301 □
June 25, 2004□

39. In the last four weeks have you used the Internet at home for: [read responses, code yes, no, DK, refused for each]

E-mail

Chat or instant messages

News reports

Paying bills or medical advice or information Paying bills or managing your money or finances Downloading music or audio files that you can listen to later Web or Internet radio Shopping Watching or downloading video Hobbies Playing games Internet telephone calls		Exhibit VPSD-7 Comments of the Vermont Department of Public Service in WC Docket 04-141 and CC Docket 99-301 June 25, 2004		
Working from home Anything else (specify)				
you say a [Please read] Dial-up modem	t describes how you currently connect	t to the Internet at home? Would		
Cable modem	02			
DSL Satellite	03 04			
Wireless	05			
ISDN	06			
WebTV or	07			
Some other way [specify]	08			
[Don't know/not sure]	77			
[Refused]	99			
41. In the next year, are you like Yes No Don't know/not sure Refused [go to {more terminals}] {no Internet}	tely to upgrade your means of Internet 1 2 7 9	t access at home to a faster service?		
	do not have an Internet connection at he respondent ask, "are there other reasons."			
Internet access is not available	where I live	1		
Internet access is too expensive		$\overline{2}$		
I don't use the service enough		3		
I don't know how to use the Int	ternet well enough	4		
I just use an Internet connection	n at work	5		
I just use an Internet connection	n at some other place other than home	or work 6		
I'm concerned about my family	accessing receiving undesired inform	nation or communications over the		
Internet		7		
I dislike being on the computer	at home.	8		
other reasons [specify]		9		

43. In the next year, are you likely to acquire an Internet access at home? **Exhibit VPSD-7**□ Yes 1 Comments of the Vermont No 2 **Department of Public Service** □ Don't know/not sure 7 in WC Docket 04-141□ Refused 9 and CC Docket 99-301 □ June 25, 2004□ {more terminals} 44. Does your community need more Internet terminals that are available for public use? Yes No 2 Don't know / not sure 7 9 Refused 45. If the computer center at one of your community schools were open to the public in the evening or weekend and offered free services, which, if any, of the following services would interest you? [Code y, n, dk, or refused for each.] [Please read] [Code 1=yes, 2=no, 7=DK, 9=Refused] Access to the internet Use of email Training programs and technical support Access to on line services allowing you to do things like renewing your driver's license or getting fishing and hunting licenses

46. Last week, did you do any work for either pay or profit? [Code yes even if the person worked only 1 hour, or helped without pay in a family business or farm for 15 hours or more, or was on active duty in the Armed Forces.]

Yes 1

 $\begin{array}{cccc} \text{No} & & 2 & [\text{Go to } \{\text{TV}\}] \\ \text{Don't know /not sure} & & 7 & [\text{Go to } \{\text{TV}\}] \\ \text{Refused} & & 9 & [\text{Go to } \{\text{TV}\}] \\ \end{array}$

47. Last week, in the course of business or employment, how many days did you spend most of your day working from home?

Don't know/not sure 77 Refused 99

48. Last week, in the course of your business or employment, how much time did you spend on the telephone or with a computer? Would you say ... [read responses]

Most of the time

About half of the time 2 Less than half of the time or 3

[if more than	ı one provider, ask for th	ie one wh	iich provides the largest part of their wireld	ess service.]
Unicel	, formerly known as	Cellula	r One	1
	•		tlantic Mobile or NYNEX Mobile	2
Nextel	~	Den 11		3
Sprint				4
U.S. C				5
	[specify]			6
	know / not sure			7
Refuse				9
15. How w	yould you rate the ex	tent of	wireless phone coverage in Vermon	t? Would you say that
	ge is [read respon			
Excelle	-		1	
Good			2	
Fair or			3	
Poor			4	
	know/ not sure]		7	
[Refus			9	
{no wireless}				
Yes No	u have access to the I know / not sure	nternet 1 2 7 9	<pre>at your workplace? {skip to {no Internet}} {skip to {no Internet}} {skip to {no Internet}}</pre>	
17. Who is	s your primary Intern	et servi	ce provider?	
Adel	-		elphia cable or Adelphia Business So	olutions (ABS)
1.	Adelphia Business S	Solution	ns (ABS)	
2.	Adelphia cable		Exhibit VPSD-8□	
3.	America On Line (A	AOL}	Comments of the Ve	rmont \square
4.	AT&T		Department of Public	c Service□
5.	Charter Communica	ations	in WC Docket 04-14	
5.	Charter Cable		and CC Docket 99-30) I 🗆
6.	Earthlink		June 25, 2004□	
7.	FCG Networks		, 25, 250	
8.	Green Mountain Ac	cess		
1.	Hyperion			
9.	Kingdom Connection	on		
10.	MCI			
11.	Microsoft Network			
	Page 6			

 11. MSN 12. New ISP 13. North Country Broadband 14. North Country Cable 13. North Country Wireless 15. Power Shift Online 16. Shoreham 17. Silicon Dairy 18. Sover Net 19. Sprint 20. Stowe Cable 21. TDS Net 1. Telcove 6. Together Net 22. Trans Video 10. UU Net 23. Valley Net 24. Verizon 25. Vermont Link.net 25. VT Link 26. Vtel Internet 10. WorldCom 27. Other (specify) 77. Don't know/ not sure 99. Refused 	Comr Depai in WC and C	it VPSD-8 ments of the Vermont ments of Public Service C Docket 04-141 C Docket 99-301 25, 2004
18. What is the primary way that your organiza necessary]	ation con	nnects to the Internet? [read responses if
Telephone access: Regular dial-up modem Dial up ISDN DSL	1 2 3	[Go to {No high speed}] [Go to {No high speed}] [Go to {No high speed}]
Cable access: Cable modem service	4	[Go to {No high speed}]
Wireless access: Satellite communication Other wireless communication Some other high speed connection	5 6 7	[Go to {No high speed}] [Go to {No high speed}]
[Don't know / not sure] [Refused] Page 7	77 99	[Go to {No high speed}] [Go to {No high speed}]

Asynchronous transfer mode or ATM T1 or DS1 Fractional T1 or DS1 T3 or DS3 Fractional T3 or DS3 Primary rate ISDN Some other direct fiber optic connection or Some other type [Don't know/ not sure] [Refused]	1 2 3 4 5 6 7 8 9 77 99	[Go to {No high speed}]
20. What kind of connection is that?		
{No high speed}		
Which of the following methods of connecting to the located? Is available? [Codes: Yes=1, 21. ISDN 22. DSL		
23. Cable modem service 24. Satellite 25. Wireless 26. Frame relay Exhibition Compaging Depaging in Western Compaging Depaging Dep	ment rtme C Do	PSD-8□ ts of the Vermont □ ent of Public Service□ tcket 04-141□ tocket 99-301□
23. Cable modem service 24. Satellite 25. Wireless 26. Frame relay 27. T1 or DS1 Exhibitation Communication Department in West and Communication and Communication and Communication Department in West and Communication and Communication and Communication Communication Department in West and Communication Communication Communication Department in West and Communication Communica	ment rtme C Do CC Do 25, 20	ts of the Vermont □ ent of Public Service□ ocket 04-141□ ocket 99-301□ 004□
23. Cable modem service 24. Satellite 25. Wireless 26. Frame relay 27. T1 or DS1 Internet services may provide different speeds for	ment rtme C Doc CC Do 25, 20 or uplo	es of the Vermont ent of Public Service cket 04-141 cocket 99-301 004 coading information to the Internet and

	[Don't know/ not sure] [Refused] [go to {end internet speed}] {download}		7 9	Exhibit VPSD-8□ Comments of the Vermont □ Department of Public Service□ in WC Docket 04-141□ and CC Docket 99-301□ June 25, 2004□
30.	Would you say that download speed	lis		
	Much more important than upload s		1	
	Somewhat more important than uple	oad speed	2	
	[Don't know/ not sure]		7	
	[Refused]		9	
	{end internet speed}			
31.	How often do you experience an int	erruption in your p	orimary In	ternet access service? [read
	responses only if necessary]	1		
	At least once a week (weekly) 1-4 times a month (monthly)	1 2		
	1-2 times a quarter (quarterly)	3		
		3 4		
	1-3 times a year (yearly) Less than once a year	5		
	Never	6		
		7		
	[Don't know / not sure] [Refused]	9		
32.	Do you plan to upgrade your Interne	et access service to	a faster s	ervice [read responses]
	In the next six months	1		
	In the next year	2		
	In the next two years or	3		
	Do you have no plan for upgrades	4		
	[Don't know / not sure]	7		
	[Refused]	9		
33.	What is the most important reason to Internet access service than it does not be a service that the service than it does not be a service that the	•		
	internet access service than it does i	iow: [Do not reac	i response	5]
	Organization too small to need it	1		
	Not needed for other reasons	2		
	Not available	3		
	Too expensive	4		
	We lack knowledge/expertise/famile	iarity 5		
	Not enough time to investigate	6 (arrity		
	1 tot shough time to investigate	U		

Telecommunication provider hard to deal w	vith	7
Other [specify]		8
Don't know / not sure		77
Refused		
		99
34. For your organization, which is more imporprice of that service?	rtant,	the reliability of your Internet service or the
Reliability is more important	1	
Price is more important	2	[go to {price}]
They are equally important	3	[go to {end price reliability}]
[Don't know / not sure]	7	[go to {end price reliability}]
[Refused]	9	[go to {end price reliability}]
[Rofusou]		[go to (end price renderity)]
35. Would you say that reliability is		
Much more important than price or	1	
Somewhat more important than price	2	Exhibit VPSD-8□
[Don't know / not sure]	7	Comments of the Vermont □
[Refused] 9		Department of Public Service□
[Refused]		in WC Docket 04-141 □
[go to {end price reliability}]		
{price}		and CC Docket 99-301 □
(price)		June 25, 2004□
36. Would you say that price is		
Much more important than reliability or	1	
Somewhat more important than reliability	2	
[Don't know / not sure]	7	
[Refused]	9	
[Refused]		
{end price reliability}		
37. How would you rate the reliability of your	Intern	et access service? Is it [read responses]
Very reliable 1		
Somewhat reliable 2		
Somewhat unreliable or 3		
Very unreliable 4		
[Don't know / not sure] 7		
[Refused] 9		
Some groups buy telecommunications on behalf of	their	members. Members often get lower

Some groups buy telecommunications on behalf of their members. Members often get lower prices, higher speed, or more reliable services,

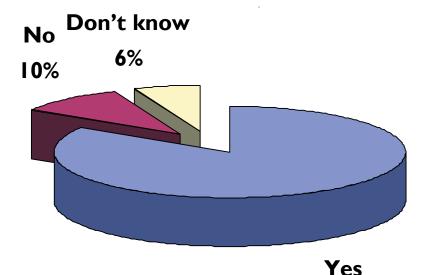
38. If such a group were seeking members in your community, how likely would you be to join? Would you say ... [read responses]

SECTION 4 · SURVEY AND PUBLIC INPUT

asked questions about the importance of wireless services and about tower siting issues. More than two thirds of all residents interviewed (69.8%) would describe the need in Vermont for better wireless phone service as very (45.1%) or somewhat (24.7%) important. Less than one fifth (18.4%) would describe it as having little importance (5.7%) or being unimportant (12.7%). Respondents from households that subscribed to wireless service felt even more strongly about the issue—87.4% felt that better wireless service was either very important (59.0%) or moderately important (28.4%). Even a majority of

(33.6%) or moderately important (21.7%).

Figure 4.17: Support more towers in community for better 2-way radio for emergency services?



84%

respondents from households that did not subscribe felt that the issue was important, either very important

Tower height and the number of towers for wireless services has been a matter of public controversy in the past. Two strategies to improve wireless coverage are to build taller towers to give signals greater range, or to locate a greater number of towers. A larger number of shorter towers might provide similar coverage to a smaller number of larger towers. The residential survey asked Vermonters to

identify which of the two alternatives they found preferable. While 30.2% of respondents would prefer a large number of short towers to improve wireless service, 29.2% would prefer a small number of tall towers. One sixth (16.7%) stated without prompt that they would prefer neither. And 23.9% did not know or were unsure. While a large majority of respondents (84.0%) would support more towers in the community to improve two-way mobile radio communications for police, ambulance, or fire services if they were needed, 10.0% of residents interviewed would not.

THE INTERNET

Both the residential and nonresidential surveys asked a number of questions regarding Internet access and the use of Internet applications. A number of these questions corresponded to questions asked in prior surveys, presenting a picture of changes over time.

Exhibit VPSD-9 Comments of the \Box Vermont 🗌 Department of Public \Box **\$**ervice□ in WC Docket 04-141□ and CC Docket 99-301 □ lune 25, 2004□

Table 4.31: Residents' frequency of Internet use

Last use of the internet?	Percent
Today	46.4
Last 7 days	20.2
last 30 days	3.7
Last 3 months	1.0
Last 6 months	2.5
last year	0.2
> 1 year	1.7
Never	23.7
Don't know	0.5

Figure 4.18: Residents who have Internet access at home

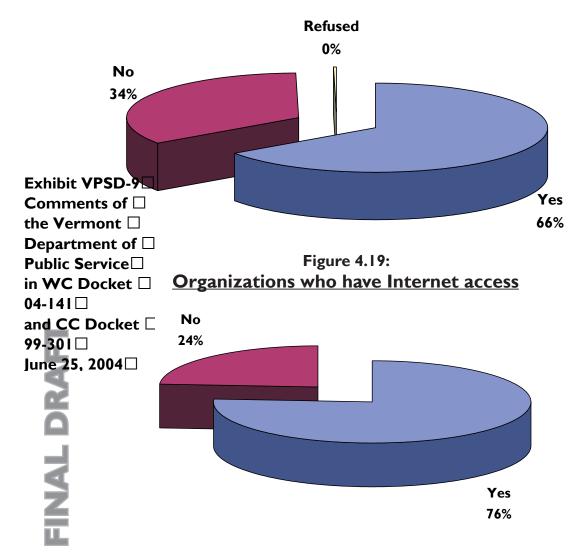
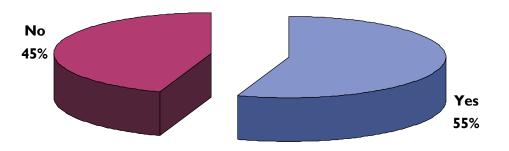


Figure 4.20:

Organizations who currently have an Internet website

Among those with Internet access



INTERNET ACCESS

Not surprisingly, Internet use in Vermont is up among both households and nonresidential users. In the 1999 residential survey, researchers asked respondents if they had ever used e-mail and if they had ever used the Internet for other purposes. Just under two-thirds answered that they had ever done these things (60% and 61%, respectively). In the 2003 survey, higher percentages of respondents answered that they not only had used the Internet at one time, but also were frequent Internet users or had access in their homes. Just under two thirds of all residents interviewed in 2003 (65.3%) had Internet access at home, while 34.4% did not. Regardless of whether or not the respondent had Internet access in the home, researchers asked a series of questions to determine respondents' frequency of use of the Internet. All respondents were asked when, if ever, was the last time they used the Internet. Table 4.31 holds results as collected. Two-thirds had used the Internet at least once in the last week, and nearly half had used it the day of the interview.

A greater number of nonresidential respondents stated that their organizations were connected to the Internet. More than three quarters of respondents (76.1%) indicated their organizations have access to the Internet. Less than a quarter (23.9%) did not. In the 1999 survey, 56% had Internet service. More

Table 4.32: **ISPs'** shares of customers

Percent of residential cus	stomers	Percent of nonresidential of	ustomers
AOL	22.9	SoVerNet	14.4
SoVerNet	11.8	Adelphia Cable	12.8
Adelphia Cable	11.5	AOL	11.5
Earthlink	8.4	Earthlink	8.8
United Online (Juno/NetZero/ BlueLight)	5.0	Verizon	6.2
Power Shift Online	4.2	VTel Internet	4.6
Vtel Internet	4.2	Green Mountain Access	4.3
Verizon	3.8	Vermont Link.Net	3.3
Green Mountain Access	3.8	Global.net	2.6
AT & T	2.3	Lightship	2.6
Global.net	2.3	Charter Communications	2.3
Innevi	1.9	Power Shift Online	2.3
MSN	1.9	Valley Net	2.3
Kingdom Connection	1.5	Kingdom Connection	1.6
Charter Communications	1.1	ABS / Telcove	1.6
GovNet	0.8	United Online (Juno/NetZero/ BlueLight)	1.6
Trans Video	0.8	GovNet	1.3
Vermont Link.Net	0.8	MSN	1.3
ABS/Telcove	0.4	AT&T	1.0
Shoreham	0.4	TDS Net	1.0
TDS Net	0.4	Stowe Cable	0.7
UU Net	0.4	Shoreham	0.3
Valley Net	0.4	WorldCom	0.3
Other	6.5	Other	6.2
Don't Know	1.5	Don't know	4.6
Refused	1.1	Refused	1.0

than half (55.4%) of the organizations with access to the Internet had a website. This is similar to the proportion in the 1999 survey, when half of the organizations with Internet access had a web site.

The market for providing Internet access in Vermont is split among a large number of companies. Respondents with Internet access were asked to name their Internet service provider. Table 4.32 portrays the results. America On-line clearly had the greatest market share among homeowners in a heavily divided field. Among the nonresidential organizations, SoVerNet and Adelphia Cable were the most frequently cited Internet Service Providers (ISPs) among an even

Figure 4.21:

Residents likely to upgrade to faster Internet

connection in the next year

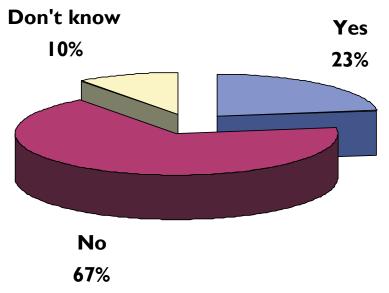
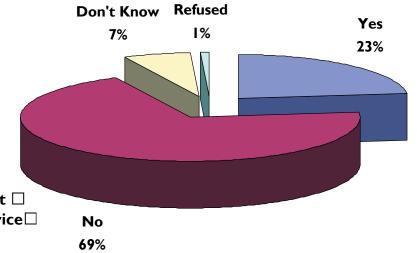


Figure 4.22:

Residents without home Internet access likely to acquire it in the next year



SECTION 4 • SURVEY AND PUBLIC INPUT

more heavily divided field. The appearance of Adelphia Cable near the top of this list is notable because Adelphia's cable modem service was originally only marketed as a residential offering, although now it is available as a business service as well. The survey results may reflect the extent to which the residential and small business markets are using similar types of broadband Internet services.

While 22.9% of the households said it would be likely they will upgrade to a faster Internet connection at home in the next year, two thirds (66.8%) will not. Ten percent (10.3%) did not know or were unsure. Just under one quarter of households without Internet access at home (23.0%) suggested being likely to acquire Internet access at home in the next year, while 69.8% said they still would not. Respondents from organizations with Internet access, were also asked if they planned to upgrade their Internet access service to a faster service. Table 4.33 portrays the results as collected. Respondents from organizations with no Internet service access (23.9%) were asked if they planned to obtain Internet access service in the future. Table 4.34 shows the results obtained.

The extent to which homes and businesses are adopting broadband Internet connections is an important question. Respondents with Internet access at home (65.3%) were asked for the type of Internet connection they had. Table 4.35 holds the results. About a quarter of Vermont homes that connect to the Internet use broadband connections, and the broadband penetration rate exceeds 15% of all Vermont homes. Cable modem connections are somewhat more common than Digital Subscriber Line

A higher proportion of nonresidential Internet users rely on a broadband connection, about half. Respondents from organizations with Internet access (76.1%) were asked for the primary way that their organizations connected to the Internet. Table 4.36 holds the results. The most common broadband means of connecting by far were still DSL and cable modems, in roughly equal proportions.

(DSL) connections.

Respondents from organizations with Internet access were read a list of methods to connect to the Internet and asked if those methods were available in the area they were located. Table 4.37 summarizes the results as collected. It is not reasonable to expect that these perceptions are in fact accurate—most users do not have detailed information about the availability of the full range of telecommunications services in their area. In fact, there are some notable errors in perception. For example, T-1 is a service that is essentially universally available, although at a price that may discourage many users. It is useful to understand what users perceive their choices to be.

Exhibit VPSD-9□
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in WC Docket 04-141□
and CC Docket 99-301□
June 25, 2004□

Table 4.33: Nonresidential plans to upgrade Internet access

Plans to upgrade Internet access service to a faster service?	Percent
Next 6 months	9.5
Next year	9.5
Next 2 years	5.6
No plans to upgrade	68.2
Don't know	7.2

Table 4.34:
Nonresidential plans to obtain
Internet access service

Do you plan to obtain an Internet access service?	Percent
Next 6 months	12.5
Next year	12.5
Next 5 years	6.3
No plans for service	63.5
Don't know	4.2
Refused	1.0

Table 4.35: Type of Internet connection--residential

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Department of Public Service
in WC Docket 04-141□
and CC Docket 99-301□
June 25, 2004□

Type of Internet connection	Percent
Dial-up	71.0
Cable modem	15.3
DSL	10.3
Satellite	0.8
Wireless	0.4
Web TV	0.4
Don't know	1.5
Refused	0.4

Table 4.36:

Type of Internet connection--nonresidential

Type of Internet connection	Percent
Dial-up modem	46.6
DSL	20.7
Cable Modem	19.0
T1 or DS1	4.9
Satellite	1.6
Dial-up ISDN	1.6
Other wireless	1.3
Fractional T1 or DS1	0.7
Frame relay	0.3
Other type	0.3
Don't know	3.0

Table 4.37: **Perceived availability of Internet access--nonresidential**

Is method available in the area where you are located?	P ercent		
	Yes	No	Don't Know
Cable modem	57.7	22.6	19.7
DSL	53.1	23.3	23.6
Satellite	43.0	14.1	43.0
Wireless	27.5	25.2	47.2
T1 or DS1	23.9	16.1	60.0
ISDN	22.0	23.6	54.4
Frame relay	8.9	13.4	77.7

Table 4.38:

Reasons for not having Internet connection at home

	Percent
Dislike at home	24.5
No computer	19.4
Too expensive	13.7
Do not use	10.8
Use at work	3.6
Use at other place	3.6
Do not know how	2.9
Family concerns	2.9
Not available	2.2
Don't know	5.0
Refused	10.0

Table 4.39: **Reasons for not using the Internet recently**

	Percent
No equipment	40.0
No interest	20.0
Do not like computers	15.2
Do not know how	15.2
Equipment too expensive	6.7
Monthly charges	1.9
Never heard of	1.9
No time to learn	1.9
Phone charges	1.0
Don't know	4.0

Table 4.40:

Home Internet access by household income

All respon- dents	Less than \$35,000	\$35,00- \$75,000	\$75,000 or more
65.3	48.1	70.7	94.3

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For those homes without Internet access, the surveys inquired as to why they did not have it. Table 4.38 summarizes the results. About a quarter of respondents stated that they disliked having an Internet connection at home or had family concerns about access. About a third stated that they had no equipment for access, or they thought it was too expensive. Residential respondents who had not used the Internet in the last six months were also asked why they had not used the Internet recently. Table 4.39 shows the results. In response to this

Table 4.41: Reasons for not subscribing to a faster Internet access service--nonresidential

Exhibit VPSD-9
Comments of the
Vermont
Department of Public
Service
in WC Docket 04-141
and CC Docket 99-301
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Most important reason for not subscribing to a faster Internet service?	Percent
Not needed	34.1
Not available	25.9
Too expensive	16.7
Too small	13.1
Satisfied with current service	3.9
Other	2.0
No time to check	2.0
Lack knowledge	1.0
Provider hard to deal with	0.7
Don't know	0.7

Table 4.42:
What Vermonters do on the Internet

Used Internet in the past 4 weeks for	Percent		
	Yes	No	Don't Know
E-mail	90.1	8.8	1.1
Shopping	61.8	37.0	1.1
News reports	60.3	38.5	1.1
Health/medical information	47.3	51.5	1.1
Hobbies	45.8	53.1	1.1
Working from home	38.5	60.3	1.1
Pay bills / managing finances	36.6	62.2	1.1
Playing games	33.2	65.6	1.1
Chat or Instant Message	30.5	68.3	1.1
Internet radio	20.2	78.6	1.1
Downloading music	17.6	80.5	1.9
Something else	16.8	80.9	2.3
Watching/downloading videos	9.5	89.3	1.1
Internet phone calls	5.3	93.5	1.1

question, the greatest number of people responded that they either lacked the equipment to do so or a computer, specifically. The survey suggested that this could be linked to income. There were great differences in the level of home Internet access at different income levels. Table 4.40 shows these results. For upper-income households, the level of penetration of Internet access approached that of telephone service.

In an open-end format question, respondents from organizations with Internet access were asked for the most important reason their organizations did not subscribe to a faster Internet access service. Table 4.41 holds the results as collected. Among those who did not say that they didn't need one or were satisfied with their current service, the most frequently cited reasons were that the faster connections were not available or too expensive, or that the organization was too small.

WAYS VERMONTERS USE THE INTERNET

Respondents with Internet access service at home (65.3%) were read a list of Internet services, and asked if, in the last four weeks,

and CC Docket \square

Table 4.43:

Percent of employees that use e-mail at wordepartment of \square **Public Service** □

In organizations with Internet access

Estimated percent of employees that use e- mail at work	Percent
1 - 10 %	22.3
11 – 20	5.6
21 – 30	6.2
31 – 50	7.5
51 - 60	1.6
61 – 70	1.6
71 – 80	4.6
81 – 90	1.0
91 – 100	48.5
Don't know	1.0

Figure 4.23: Does your organization make business-to-business transactions over the Internet?

Among organizations with Internet access

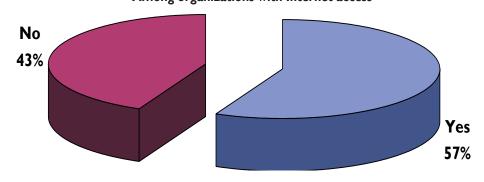
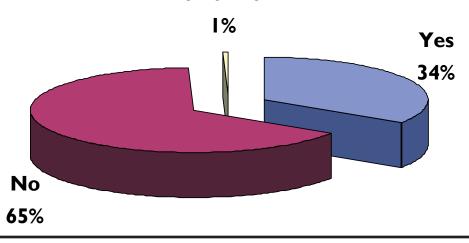


Figure 4.24: Can customers make purchases using your site?

Among organizations with a website open to the public

Don't know



Respondents working at organizations with Internet access were also asked a series of detailed questions about the ways their organization used the Internet. Table 4.43 summarizes the results of a question asking the percent of their employees that used e-mail at work.

they had used the Internet at home for each one of

these services. Table 4.42

summarizes the results as

who had used the Internet

were asked how often they had visited a Vermont State

Government Internet web site. Almost half (44.6%) suggested having never visited a Vermont State Government website, while two fifths (20.9%) having visited occasionally. Under one sixth (14.2%) suggested visiting frequently, and 0.3%

said they did not know or

were unsure.

collected. Respondents

in the past year (73.8%)

More than half (57.0%) of organizations interviewed with access to the Internet indicated making businessto-business transactions over the Internet. Figure 4.23 summarizes the results. This figure has changed dramatically since the 1999 survey, when only 17% percent of organizations connected to the Internet responded in a like manner. More than one fifth (22.4%) of organizations doing business-to-business transactions over the Internet stated these transactions used digital signatures. In

Table 4.44: Importance of upload vs. download speeds for organizations

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Is upload or updown speed more important?	Percent
Upload more important	7.9
Download more inportant	36.7
Equal	48.5
Don't know	6.9

Table 4.45: Locations used the Internet in the past 12 months

	Percent
Home	83.7
Work	52.0
Friend/neighbor/relative	30.7
School or college	18.9
Library	13.9
Government office	2.0
Senior Center	1.4
Restaurant	1.0
Place of worship	0.7
Other business	3.7
Other	1.4

Table 4.46:

Interest in seeing more public Internet terminals

Does your community need more public use Internet terminals?	Percent
Yes	27.2
No	42.1
Don't Know	30.7

contrast, the 1999 survey uncovered virtually no evidence of digital signature use by organizations in Vermont.

Respondents were also interviewed about how their organizations used its website. Almost two thirds (63.9%) of organization websites are used by the public as well as by internal staff members. Just over one third (34.3%) noted their website is only used by the outside public. And a few (1.2%) indicated their website was for internal use only. More Vermont organizations are using websites to drive sales. Of those websites open for public use, just over one third (34.3%) allow customers to make purchases using the website. This is up significantly from 1999, when only 14% of respondents had a similar answer.

Many Internet access services are asymmetrical, providing greater download speeds than upload speeds while others are symmetrical. The survey explored how organizations valued upload and download speeds. Respondents from organizations with Internet access were provided with the following statement: "Internet services may provide different speeds for uploading information to the Internet and downloading information from the Internet." Almost half (48.5%) noted both upload and download speeds were equally important for their organizations. More than

SECTION 4 • SURVEY AND PUBLIC INPUT

one third (36.7%) suggested download was more important, and 7.9% indicated upload was more important.

One third (33.3%) of respondents who favored upload over download, indicated upload was much more important than download. Two thirds (66.7%), suggested upload was only somewhat more important

Table 4.47: Interest in community Internet assistance programs

If offered for free at a community school, interested in	Percent		
	Yes	No	Don't Know
Access to the Internet	30.7	64.3	5.0
Use of e-mail	25.2	69.8	5.0
Training/technical support	38.2	57.1	4.7
Access to online services	37.2	58.6	4.2

than download. One half (50.0%) of respondents who favored download over upload, indicated download was much more important than upload. The other half (49.1%) noted it was only somewhat more important.

USE OF THE INTERNET OUTSIDE THE HOME

Respondents who had used the Internet in the past year (73.8%) were read a list of locations where people might use the Internet, and asked if they had used

it at each location in the last twelve months. Table 4.45 depicts the results as collected.

More than a quarter of all respondents (27.2%) agreed their respective communities need more public use Internet terminals. More than two fifths (42.1%) did not. And 30.7% did not know or were unsure. Table 4.46 holds the results collected.

Researchers presented respondents with the following question: "If the computer center at one of your community schools were open to the public in the evening or weekend and offered free services, which, if any, of the following services would interest you?" Table 4.47 holds the results. These results are very similar to the results obtained from similar questions in the 1999 survey.

Table 4.48: Reliability of nonresidential Internet access service

Frequency of service interruption with primary Internet access service?	Percent	Cumulative
Weekly	23.3	23.3
Monthly	25.6	48.9
Quarterly	17.7	66.6
Yearly	14.1	80.7
<1 per year	4.6	85.3
Never	10.5	
Don't know	4.3	

Table 4.49: Is reliability or price more important?

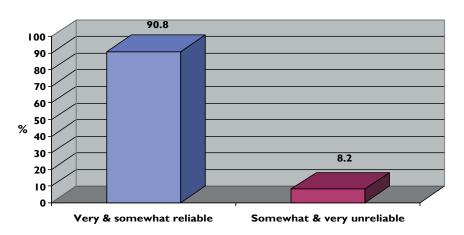
Is reliability or price of Internet service more important?	Percent
Reliability more important	39.7
Price more important	12.5
Equally important	46.9
Don't know	1.0

RELIABILITY AND PRICE SENSITIVITY

In an aided open-ended format, researchers asked nonresidential respondents how often they experienced an interruption in their primary Internet access service. Table 4.48 holds the results.

Figure 4.25:

How reliable is your organization's Internet service?



Almost half (46.9%) of respondents from organizations with Internet access suggested reliability and price were equally important for their organization. Two fifths (39.7%) indicated reliability as being more important. And one eighth (12.5%) mentioned price as being more important for their organizations. Table 4.49 holds the results.

Just under half (48.8%) of respondents who favored reliability over price, indicated reliability was much more

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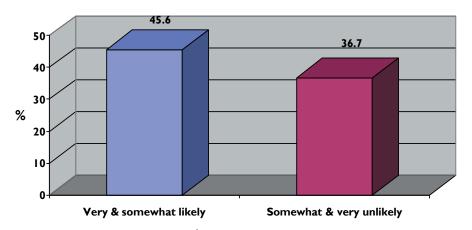
important than price. One half (50.4%), suggested reliability was only somewhat more important than price. Just over two fifths (42.1%) of respondents who favored price over reliability, indicated price was much more important than reliability. More than half (55.3%) noted it was only somewhat more important.

A large majority (90.8%) of respondents from organizations with Internet access suggested their service was very (59.7%) or somewhat (31.1%) reliable. Less than ten percent (8.2%) noted their service was somewhat (4.9%), or very (3.3%) unreliable.

Figure 4.26:

<u>Likelihood of joining a telecommunications buyers</u>

<u>group</u>



AGGREGATE BUYING

There have been a number of organizations and communities that are or have attempted to organize users into aggregate buying groups in order to obtain better telecommunications service or lower prices. The nonresidential survey asked respondents several questions about this concept. More than two fifths (45.6%) of respondents from organizations with Internet access